SHOULD ARTHRITIC PATIENTS BECOME CRIPPLED?[1]

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Barbara Mortimer Thomas was a young Australian woman who distinguished herself in her manner of living and in her manner of dying. She lived only thirty-two years, but during those few years she showed remarkable versatility and breadth of mind. When she left school she took the Bachelor of Arts degree at Sydney University. But she was not satisfied with culture of the mind only; she also chose the culture of the body in its truest and most utilitarian sense. She started the physiotherapy course, but after a time shifted her vision a little and did two years of the medical course.

She had always distinguished herself at another activity of the body—the game of hockey. When she was chosen to go to England with an Australian team she went. This meant an interruption of her medical course and she was destined not to resume it. Always looking for wider fields to conquer, she felt the call of London and physiotherapy. She completed her course in London and in next to no time she was second in command of the prenatal and postnatal clinic at St. Thomas's Hospital.

Miss Thomas had a radiant and sunny disposition and a sense of humour which

[1] The Barbara Mortimer Thomas Memorial Lecture, delivered at Launceston on October 16, 1954

was useful to her as a teacher. She revisited Australia before the war and, in Sydney, helped to make a film to teach the exercises. She returned to London and continued the work during the war. When a bomb struck the nurses' home where she was sleeping she was buried in rubble, but was preserved for sixteen hours after the bombing by a huge girder which rested on her. Workers were feverishly trying to rescue her, fifty feet up in the ruined building. Her cheerfulness and sense of humour stood her in good stead during those sixteen hours. Our Australian girl gave such example to those in London that she got special mention in a book called "Carry on, London". So I am proud to be here delivering the Barbara Mortimer Thomas Oration, to commemorate the lovely girl who knew not only how to live, but how to die.

When I was asked to lecture on "Recent Advances in the Field of Rheumatology", I said that I should prefer the title "Should Arthritic Patients Become Crippled?". I wanted to put the emphasis in the right place. When we talk about treatment we are apt to forget the primary object of that treatment, which is prevention of crippling.

CORTISONE AND BUTAZOLIDIN.

Rheumatology means the study of rheumatic disease. Several important advances have been made in the past five years. These advances are important for more than one reason. Firstly, they give us greater understanding of the pathology of rheumatism and thus pave the way to further advances. Secondly, they relieve rheumatic pain and thus help present sufferers. Our whole outlook on rheumatology was completely changed by cortisone. Of itself it is not of extreme value for treatment. But it has shown us that arthritis can be controlled by drugs. A further advance was the discovery of hydrocortisone. Cortisone produces no effect when injected straight into a joint, but hydrocortisone does; it suppresses the arthritis directly.

The latest discovery, butazolidin, acts like cortisone but is not related to it. You all know the story, how it was synthesized in order to help to dissolve amidopyrin, which is a well-known feeble analgesic like aspirin. The solution of amidopyrin was found to be much more active against rheumatism than amidopyrin alone. And it was discovered that the supposedly inert butazolidin was really a powerful anti-rheumatic drug. It is much more useful than cortisone because it can be given to three-quarters of all rheumatic patients; but it is not suitable for old people or those who are sick from other causes. So we are still on the search for the perfect drug which will suppress rheumatic disease without producing any side effects.

Cortisone and butazolidin not only relieve rheumatic pain but also suppress rheumatic inflammation, though they do not cure the disease. When treatment with cortisone is stopped the disease always returns. And these drugs do not correct the evil secondary effects of rheumatic disease, such as muscular wasting and contractures, scarring of ligaments, softening of bone, destruction of cartilage and deformities of joints. It is through these effects that rheumatism cripples, and it is the job of the physiotherapist to prevent the crippling.

RESEMBLANCE TO POLIOMYELITIS

The effects of rheumatoid arthritis resemble in some ways the effects of poliomyelitis. In poliomyelitis the active stage is soon over and the patients are left with weakened muscles. Years are occupied with re-educating muscles and restoring their balance, thus preventing deformity. In arthritis active inflammation induces muscular wasting, which is worst in the extensor muscles. Our patients usually have weakened quadriceps and extensors of the wrist.

In poliomyelitis the job of the physiotherapist is to restore the strength of weakened muscles. Similarly with spastic paralysis and other injuries or diseases of nerves. Nearly all deformities proceed from disordered muscle balance. The deformities of rheumatic disease are not exceptional. Why, then, is a different form of treatment, namely, heat, so widely adopted in rheumatism? Heat treatment is a placebo—

something you have to do to keep the patient's mind occupied while he is being treated. All doctors have to give placebo medicines, but they should not let them usurp the place of treatment.

We should not forget the important treatment — the re-education of muscles. It would be better to forget the heat. You are specialists in muscles, and the education of muscles is the true purpose of physiotherapy.

A VICIOUS CIRCLE.

The habitual position of greatest comfort intensifies these effects. We like to sit or lie with our knees bent even in health. In disease the effort of straightening them is painful. We habitually hold our arms to our sides, allowing our wrists to droop. The diseased wrist rapidly loses the power of extension. Prolonged stretching of a muscle weakens it even when healthy. The longer a knee is allowed to stay bent or a wrist is allowed to droop, the more painful and difficult is the effort of correction.

In rheumatoid arthritis a bad posture (flexed knee) not only damages muscle; it damages the knee-joint and keeps it swollen and inflamed. It cannot be extended and the patient walks around on bent knees which concertina every time he takes a step (Figure 1). This causes more pain and damages the joint still further. This increases the inflammation and swelling, and it becomes too painful to walk. Ligaments and bone soften and cartilage disappears.

But the bone needs weight-bearing. Healthy bone will decalcify if it does not bear weight. Cartilage needs the stimulus of rubbing against another cartilage; it requires that for health. Muscles need to be actively contracted So we have a vicious circle: the joint makes the muscles worse, the muscles make the joint worse. Everything about the disease increases the liability to deformity.

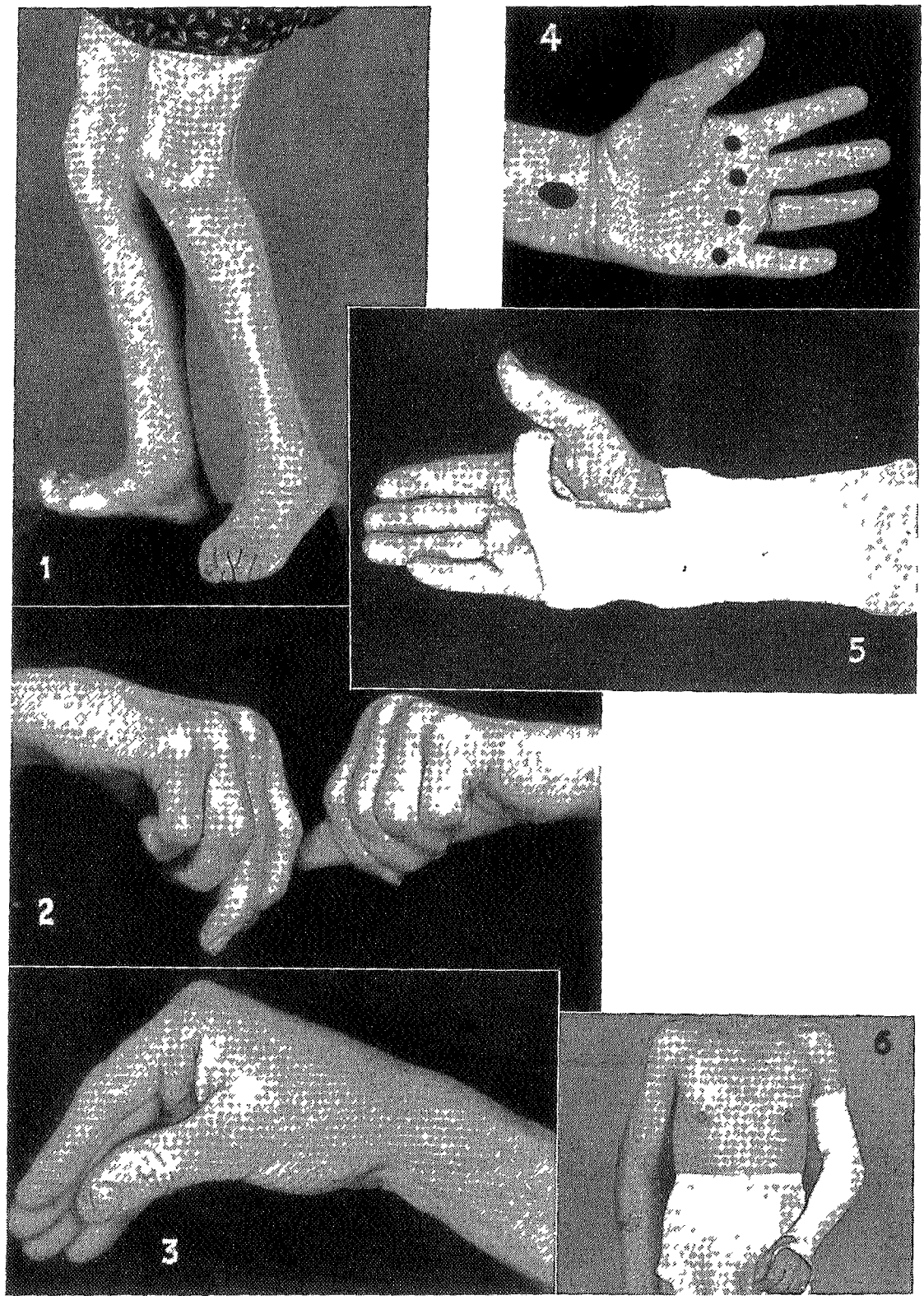
Many of the things we do make matters worse. The knees and fingers are getting stiff and the patient feverishly exercises them to stop this; but repeated movements of the inflamed joints only make them worse. Trying to put them through their range of movement causes severe pain and pulls on painful muscles and ligaments. This exercises equally the powerful flexors and weakened extensors; and the joint never achieves the position of full extension which really matters. Passive movements always do harm.

THE UPPER LIMB

The hand is more painful than any other joint. And nearly all the pain in the hand and fingers is referred from the wrist. The flexor tendons and median nerve are very close to the joint. A short burst of arthritis of the wrist can do irreparable harm. It becomes extremely painful and swollen, and the backs of the hand and fingers swell like sausages (Figure 2). The hand droops and the fingers become straight. First, pain stops the patient from moving the fingers, but the wrist soon sets like a jelly and the fingers just can't be flexed. When you see the patient the arthritis of the wrist will have subsided and there will be plenty of downward movement but very little upward movement from the mid-position. The loss of this amount of dorsiflexion can be disastrous, because dorsiflexion at the wrist is an essential stage in closing the hand.

The interphalangeal joints may become straight and stiff without having had arthritis. The tendons cannot bend them but they pull on the finger as a whole. The patient keeps trying to close the hand but he can only hyperflex the metacarpophalangeal joints (Figure 3). Frequently the base of the proximal phalanx is dislocated off the metacarpal head. The interossei muscles lose their power to perform lateral movements. The only force controlling the fingers is gravity, so they become deviated to the ulnar side. This is accentuated by efforts to raise the body on the flexed wrist and closed hand.

Diagnosis of arthritis of the wrist often depends on localized tenderness (Figure 4). The hand may be swollen and the finger joints apparently involved. Yet it all has evolved from the wrist; if that is corrected the fingers will recover. It should be fixed in the correct position and fingers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and thumb left free, wrist midway between supination and pronation (Figure 5). Radial and ulnar styloids should be padded with felt. This will encourage rotatory movements. The plaster should stay on for five or six weeks. Then it should be worn intermittently for gradually diminishing periods. A stiff leather support applied in the mid-position should be made immediately and worn continuously.

When an elbow is painful and swollen it should be immobilized at right angles and the hand should be used (Figures 6, 7, 8). The first elbow I immobilized belonged to a girl with many ankylosed joints, including the other elbow. That was six years ago and these photographs were taken a few weeks ago (Figures 9, 10). An elbow frequently becomes fixed at right angles when a patient lies or sits with a painful drooping hand, and the hand becomes pronated and cannot be supinated. Efforts to mobilize the elbow actively or passively always cause severe pain and hasten ankylosis.

The painful shoulder, too, is best treated by immobilization. I have treated many by binding the humerus to the side, and I have never seen any harm to be caused (Figure 11) Usually the hand has to be fixed too. If the patient can use the hand the arm gradually works loose; and partial fixation is worse than none.

THE KNEE

You will be surprised when I tell you that the hips and ankles play relatively little part in crippling. It is the knees which put the patient in bed or in a wheelchair. He will walk on painful, swollen ankles and feet, and he will walk even though he has two stiff hips. After the hands, most of the pain of arthritis is in the knees. Nine out of ten bedridden patients, if questioned about the progress of the disease, will relate the same sequence:

1. The knees first became painful and swollen and the quadriceps muscles wasted away.

2. The patient walked less and less and sat in a low armchair more and more. He could not get out of the chair unassisted.

3. He could not straighten his knees.

4. He could not walk and took to a wheelchair or bed.

5. Continuous sitting or lying discouraged use of his hands. His wrists drooped in pronation, his elbows remained at right angles, his arm was held to his side.

The knee which threatens deformity may be painful or painless, swollen or not, reduced or unrestricted in range; but it always has a weakened quadriceps muscle which must be supported. The patient should not flex his knee, he should concentrate on quadriceps drill. He should keep his knees straight when sitting or lying, and the chairs and bed he uses should be raised on blocks.

The weak quadriceps muscle should be supported by a straight caliper with a band instead of a ring (Figure 12). The band is easier to apply than the ring and it does not need accurate measurement. The leg bears its own weight; this is good for muscles, cartilage, ligaments and circulation. Walking is insisted upon.

If the knee is painful and swollen the caliper is fixed with plaster bands and worn night and day (Figure 13). A night shoe is provided with the caliper or the lower ends can be separated with a wooden spreader. The duration of immobilization depends on the intensity of the arthritis. The pain disappears at once and the swelling subsides rapidly though the limb is bearing weight.

FIGURE 1 Flexion deformity of knees in advanced arthritis

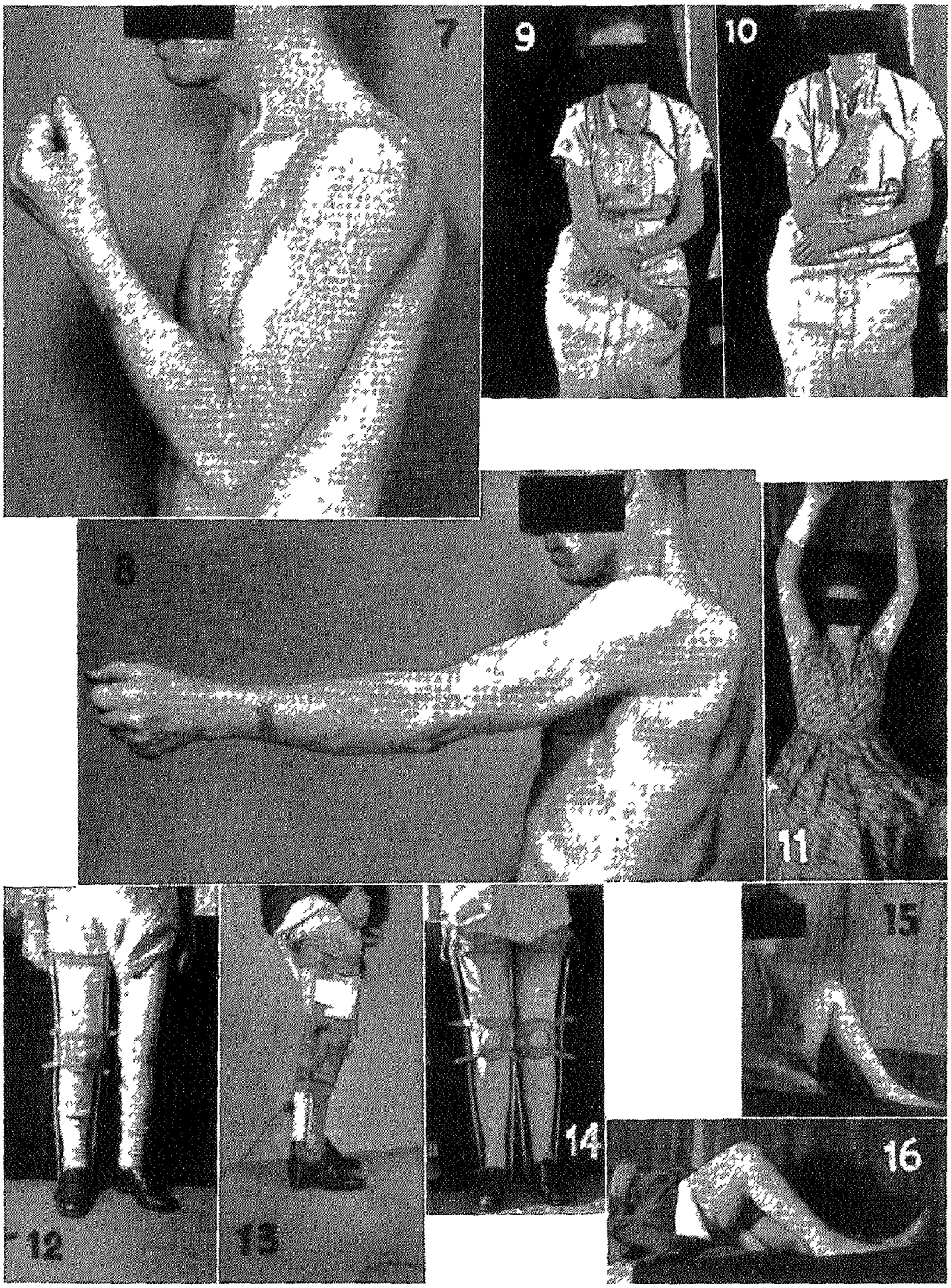
FIGURE 2 Dropped wrists with swollen fingers which cannot be completely flexed.

FIGURE 3 Hyperflexed metacarpophalangeal joints with straight interphalangeal joints

FIGURE 4 Shaded areas show tenderness in arthritis of wrist and of metacarpophalangeal joints.

FIGURE 5. Plaster cast which leaves fingers and thumb free, allows wrist to be supinated.

FIGURE 6. Arthritis of elbow. Plaster applied at right angles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If both knees are painful the two can be treated at once and the patient will use crutches (Figure 14). The relief given by immobilizing two painful knees is astonishing.

After the fixation has terminated the caliper should be worn during the day for diminishing periods. Many patients need to wear it part of the time each day for many months. It should never be discarded entirely. The caliper should always be kept in reserve in case the knee gets painful again. Flexion always returns with normal use of the limb (Figure 15). Forcible active and passive movements are not necessary. Quadriceps exercises should be done and low chairs should be avoided. There is no danger of ankylosis in extension.

A flexion deformity should be treated as urgent. Crippling is imminent. The knee should be straightened under general anæsthesia, then treated as already described. The patient should be able to get up within two days and to walk with crutches. Usually a surprising range of flexion develops (Figure 16), but if the joint is disorganized one does not hope for movement. The patient is extremely grateful for a stable ankylosis in extension.

PREVENTION OF DEFORMITY

In text-books and elsewhere a lot of lip-service is paid to the prevention of deformity, but we have not been taught to discriminate between what is good and what is bad. Much of the treatment we give, with the best intentions, actually leads to deformity. We should have it on our minds the whole of the waking day. Deformities are harder to prevent in rheumatoid arthritis than in poliomyelitis because the rheumatic inflammation does not subside. We are tempted to give short-wave therapy and forget about quadriceps drill. The patient feels like throwing the splints away and gets bored with the exercises which have to be done year in, year out. If we lose sight of him for a few months he may come back with an irremediable deformity.

We can have too much exercise and we can have too little. Shoulders which are stiff in the morning often work loose during the day. The shoulders of a bedridden patient ache more than those of a patient who is up and about. But don't let this lead us into the opposite error: Too much exercise is more harmful than too little, especially if the painful joint is put through its full range. Moderation in all things is required.

The patient who has been sitting around and worrying all day looks keenly at your face for a ray of hope. You have to be an actor; every movement and every word must give your patient encouragement. Do not hold out false hopes, but give sympathy and the confidence that something can be done. A patient with arthritis often needs moral support more than he needs treatment. Almost everything depends on his own efforts, and he needs encouragement to keep up the effort. There is plenty of humorous talk about arthritis specialists whose patients never die and never get well, and thus are permanent sources of income to the doctors. But these patients need someone who understands them.

You may have to go for long periods without doing anything active. Most treatment is of the placebo variety; it is designed

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FIGURES 7 AND 8 Same patient as Figure 6 Range of movement four months later.

FIGURES 9 AND 10 Ankylosing arthritis (Left elbow and both wrists ankylosed) Right elbow was immobilized for four weeks in 1948.

FIGURE 11. Rheumatoid arthritis of many joints, including both shoulders Upper arms were bound to chest wall three months ago

FIGURE 12. Caliper applied for hydrarthrosis of knee joint.

FIGURE 13. Caliper fixed on with plaster after correction of flexion deformity under general anæsthesia

FIGURE 14. Calipers applied for hydrarthrosis of both knee joints.

FIGURE 15. Same patient as in Figure 13. Range of flexion three months later.

FIGURE 16. Same patient as in Figure 12 Range of flexion four months later.

to satisfy the patient's mind, but it is very important how it is given. Many a time I have said to a patient after examination: "Anyhow you'll never be in a wheelchair." And the patient has replied with a sigh of relief: "Doctor, that's just what I've been worried about." A doubting or discouraging phrase can depress a patient and take away all his hopes. Too many of us let the unruly member wag uncontrolled and say: "It won't be long before you're bedridden", or words to that effect. But we don't know enough about rheumatoid arthritis to give a bad prognosis. The disease is not inevitably progressive. We often see joints recover unexpectedly after having been disorganized for years.

I am especially glad to be speaking on this subject on this occasion, because I feel that Barbara Mortimer Thomas would have understood me. No occupation on earth is inevitably a dull routine business; it is what you make it, and the only way to make anything of it is in the service of others. To many of you, physiotherapy may seem a dull and routine business, but you who deal with sick people are privileged in a special way. You have plenty of opportunities to realize your ideals in your daily work.

Barbara Thomas was loved by all who knew her, and not only because she was efficient, and brilliant, and intelligent, and athletic. She was loved because she was kind and cheerful, and because she enjoyed making others happy. Her intellectual gifts brought her into contact with many who would not have had the chance to know her if she had been just an ordinary girl. People like you and me, with ordinary gifts of intellect, can also be kind and cheerful; and that is our daily recurring opportunity to put our ideals into practice.

SUMMARY.

Painful swelling of joints can be suppressed by immobilization and then ankylosis does not occur.

In rheumatoid arthritis it is extremely important that patients should walk and use their hands.

If flexion deformities of knees and wrists are prevented, the patients will never become crippled.

The deformities are due to weakness of muscles.

Muscle training is therefore the chief job of the physiotherapist, who should always be optimistic, kindly, and confident.